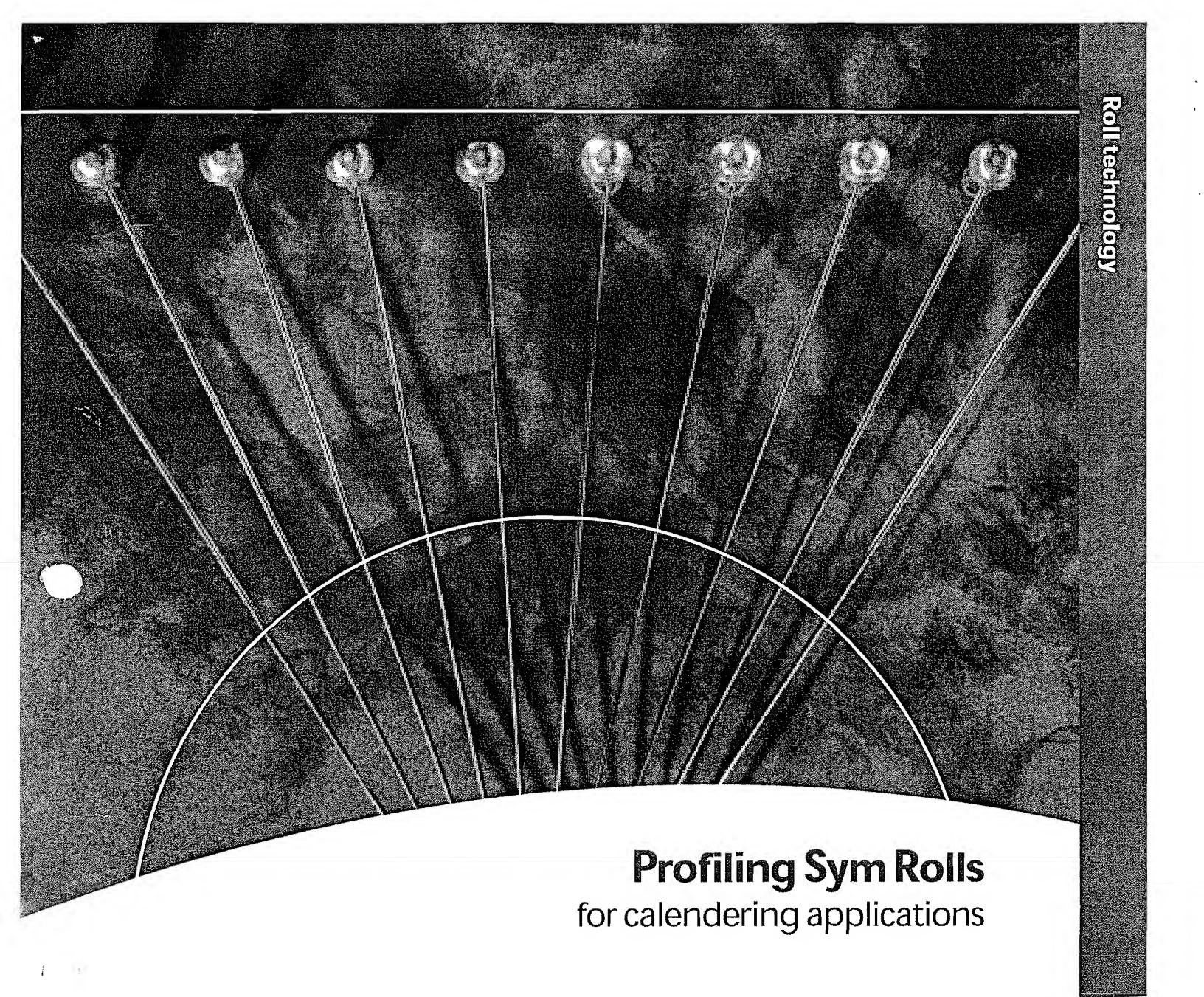


Fig. 1

Roll technology



Profiling Sym Rolls

for calendering applications





Where only the best profiling concept qualifies

To maximize profitability, papermakers continuously strive for optimum paper quality while using existing production capacities to the fullest extent. Increasing production efficiency and reducing the need for maintenance are therefore essential targets.

The calender is a critical link in the papermaking chain with respect to the development of paper surface properties. The best product quality is achieved by operating a calender with accurate and quick caliper control capability over a wide control range.

A TOTAL PROFILING CONCEPT YIELDS MAXIMUM CALENDER PERFORMANCE

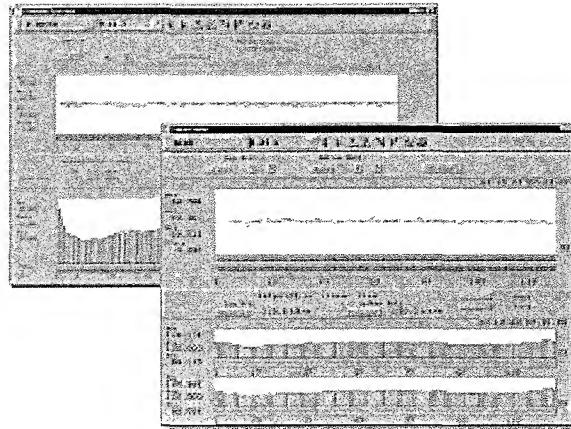
Metso Paper's profiling system for calenders is a complete package combining zone-controlled rolls with an integrated automation and hydraulic system. The system is matched to each profiling need and calender application, while taking into account the special de-

mands of the paper grade. The system is applicable to all types of calenders, to new machines, calender modernizations and roll upgrades. It can also be integrated into all paper machine types, regardless of the supplier.

Metso Paper leads the market with a total profiling package that includes the following benefits:

SUPERIOR profiling performance

Metso Paper's system offers an extremely high degree of profiling over the entire range of linear loads. The high profiling capacity can be maintained even with the lowest nip pressures using the aid of a patented divided counterzone arrangement inside the roll. The advanced control system, together with the narrow loading element design and thin roll shell construction, provides a focused and highly accurate profiling response.

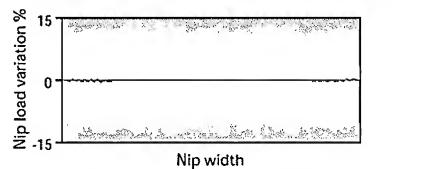
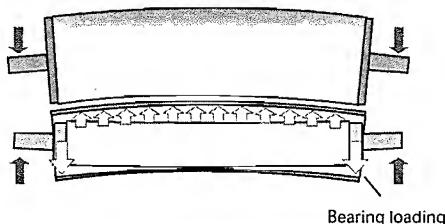


EFFECTIVE edge control using hydrostatic sliding bearings

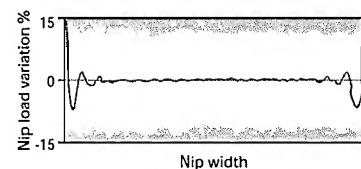
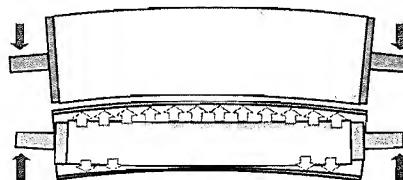
Metso Paper is the first and only supplier to replace roller bearings with patented hydrostatic sliding bearings. Compared with conventional self-loading zone-controlled rolls, loadable sliding bearings on roll shell ends provide significantly improved nip profile control of the critical paper edge areas.

Effective edge control with an active bearing loading

Metso Paper's high-precision roll with adjustable sliding bearing loading on shell ends



A self-loading zone-controlled roll with unloaded bearings



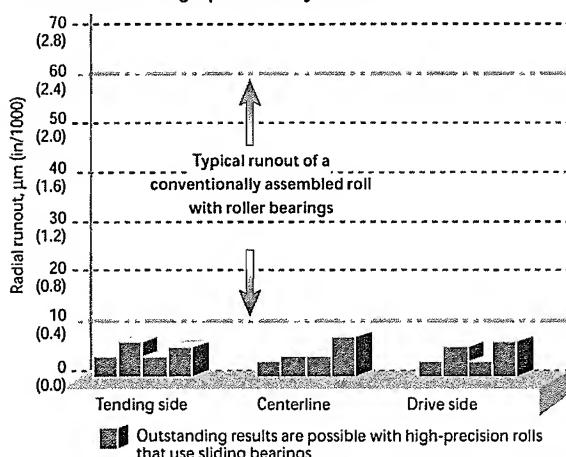
EXCELLENT runnability

The use of sliding bearings means reliable and maintenance-free operation for all loading conditions and machine speeds. The construction yields unequalled accuracy, as seen in the comparison of grinding results from the different roll designs shown below. Minimized vibration, thanks to the running accuracy and good dampening properties of hydrostatic sliding bearings, help to eliminate barring.

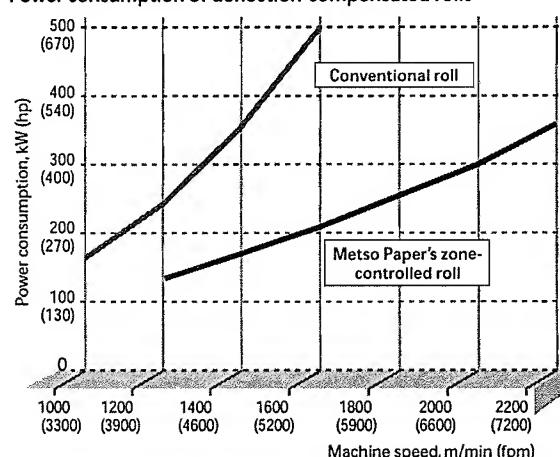
LOW power consumption

Metso Paper's zone-controlled rolls also feature a built-in oil removal system, which minimizes the amount of oil inside the roll. Less oil inside the roll dramatically decreases power consumption compared with conventional deflection-compensated rolls, which are continuously run oil-filled. A balanced oil feed and removal system inside the roll also provides even temperature distribution over the shell.

Radial runout of high-precision Sym rolls

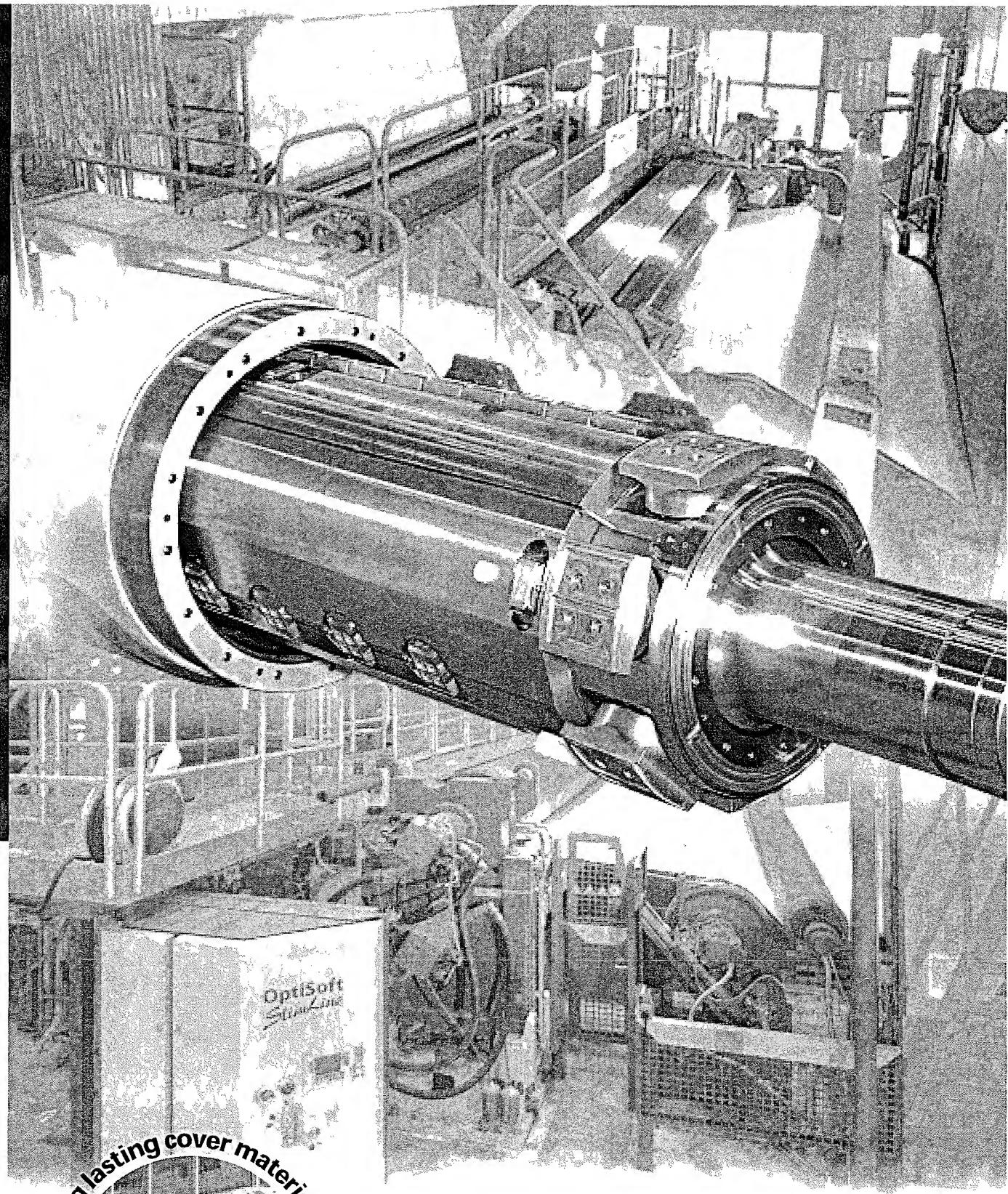


Power consumption of deflection-compensated rolls



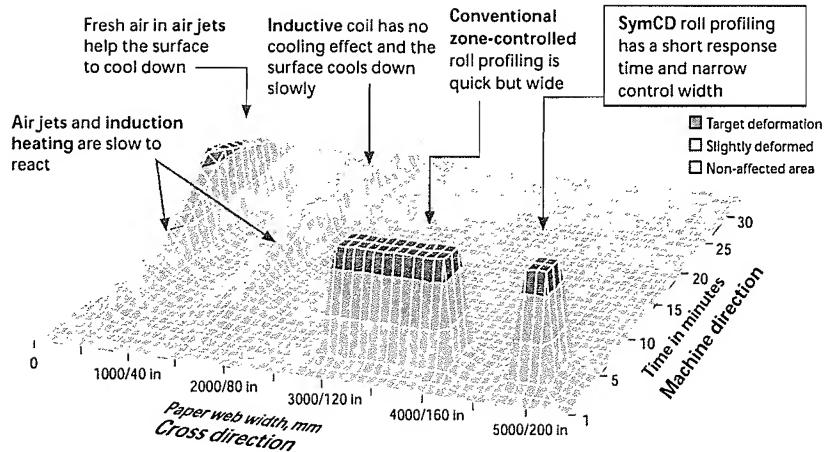
PROFILING
PRECISION

THE PROFILING ROLLS



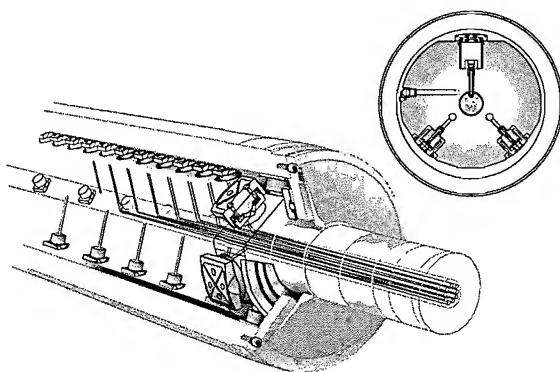
Metso Paper provides extremely durable roll surface materials, such as hard-chilled cast iron or polymer covers, to match the requirements of roll application, paper grade and calendering conditions. Using these top-quality materials, papermakers can maximize grinding intervals and schedule roll changes according to a preplanned maintenance program.

In soft and multinip calenders, Metso Paper's polymer covers optimize the performance of Sym rolls.



High-Precision SymCD Profiling Roll

Metso Paper's High-Precision SymCD Profiling Roll represents state-of-the-art technology for instant correction of local caliper profile deviations. This cross-direction profiling roll provides much quicker control than temperature profile equipment and no separate caliper control devices are needed anymore.



The high-precision SymCD roll

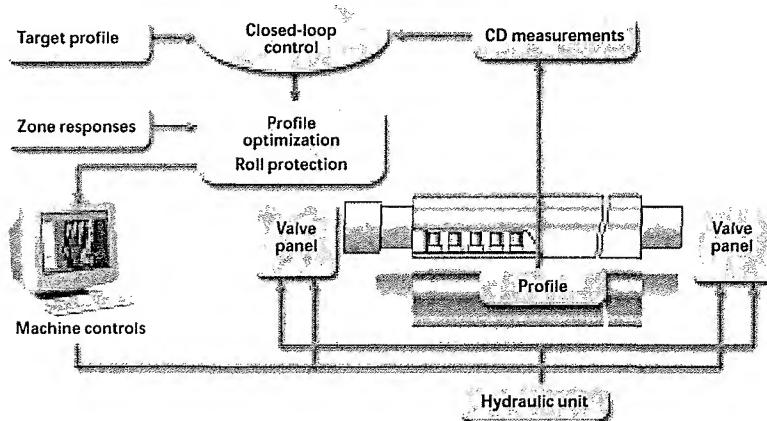
Features

- Thin roll shell and narrow shoes provide narrow zone responses
- Advanced control system for excellent profiling accuracy
- Hydraulic adjustment gives immediate response
- Proven design with a hydrostatic sliding bearing
- Maintenance-free construction
- Self-loading or fixed shell applications
- Roller-bearing-based design for low-speed machines is also available

Closed-loop CD control

Profiling rolls, hydraulics and automation – Metso Paper provides a comprehensive closed-loop CD-control system to ensure optimum paper profiles. The PaperIQ quality control system by Metso Automation can also be integrated into the package.

The resulting system combines the paper technology and information intelligence from two market leaders – both part of Metso Corporation – to give the ultimate quality safeguarding process.



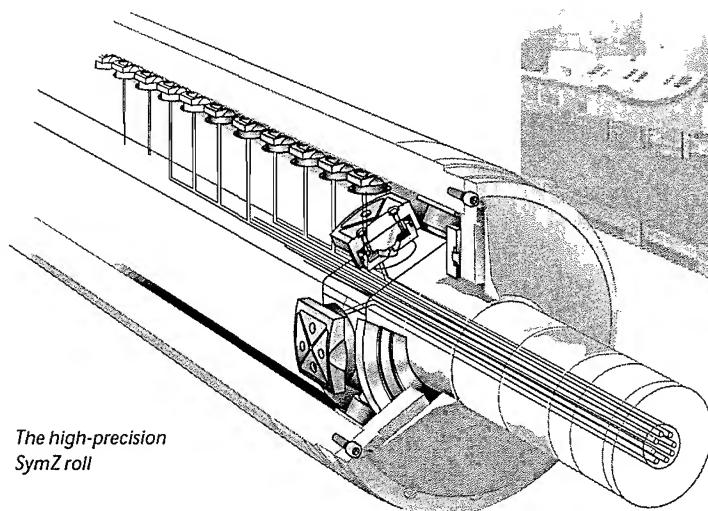
HIGH-PRECISION
SymCD PROFILING

High-Precision SymZ Roll

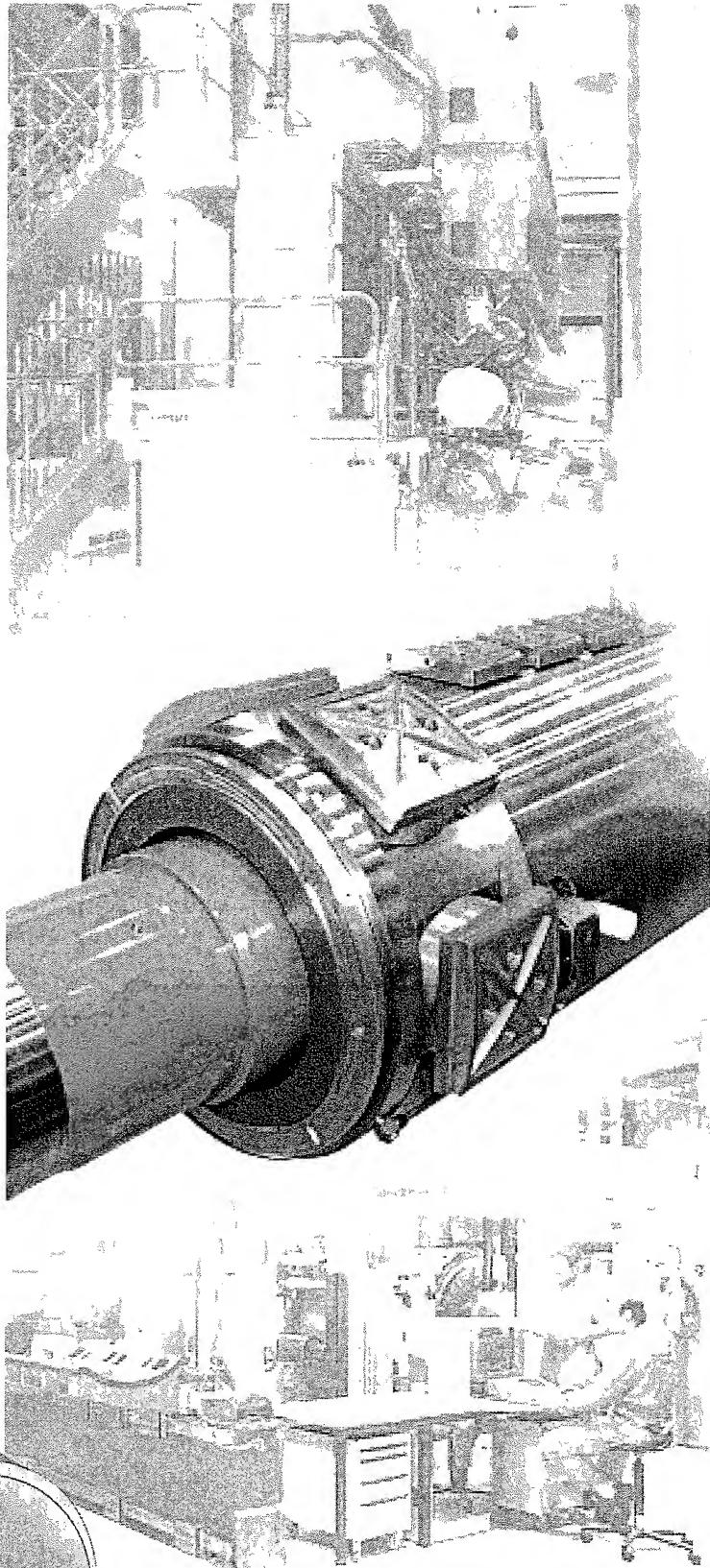
The high-precision SymZ roll by Metso Paper is a zone-controlled roll equipped with hydrostatic sliding bearings. It has been designed to meet the requirements of high-speed paper machines. With the SymZ roll, the nip profile can be easily adjusted across the entire sheet width.

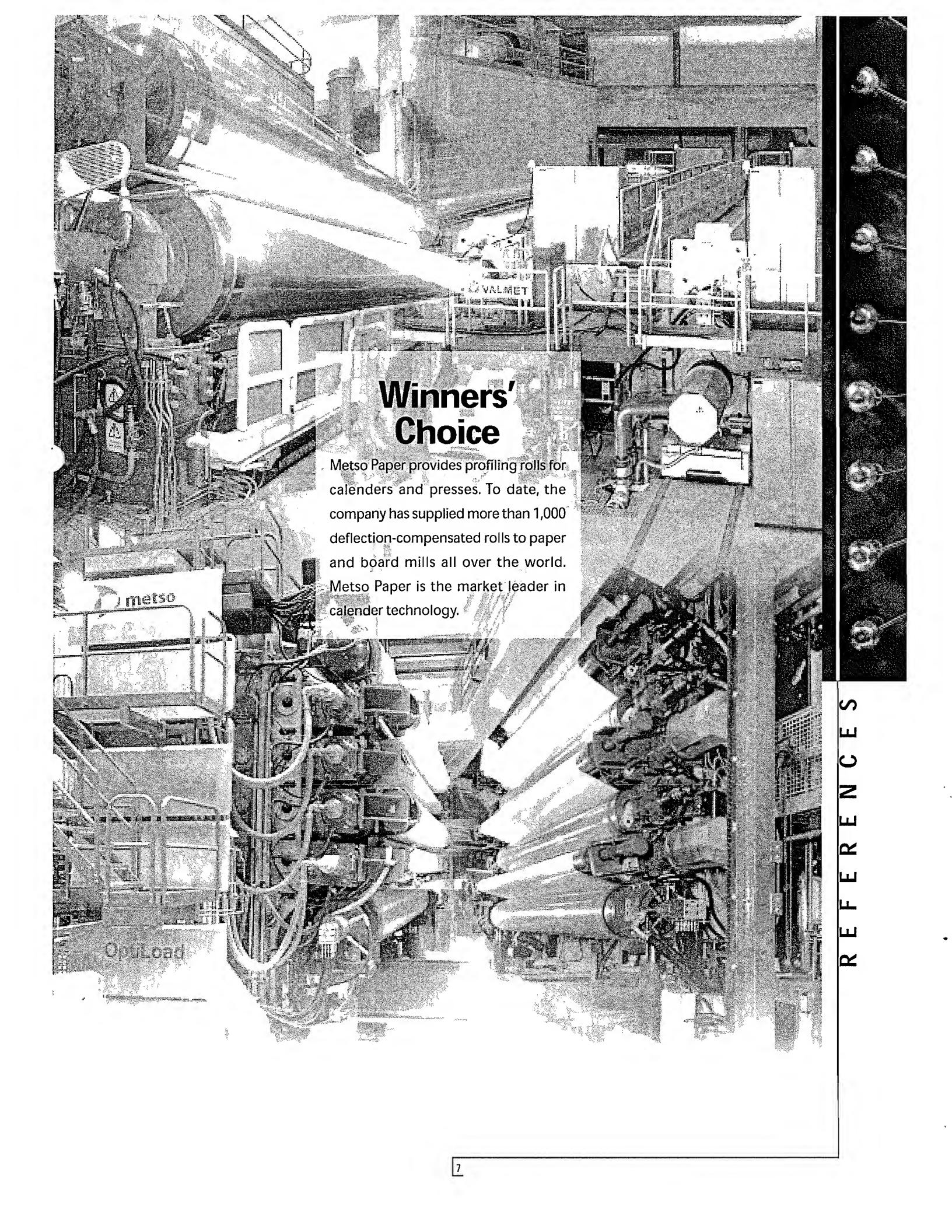
Features:

- Unique rotation precision due to the sliding bearings
- Adjustable bearing loading
- Smart control system for easy operation
- Self-loading or fixed shell applications
- Available with 1- 8 zones
- The classic SymZ Roll with a roller-bearing-based design is also available for low-speed machines



*The high-precision
SymZ roll*



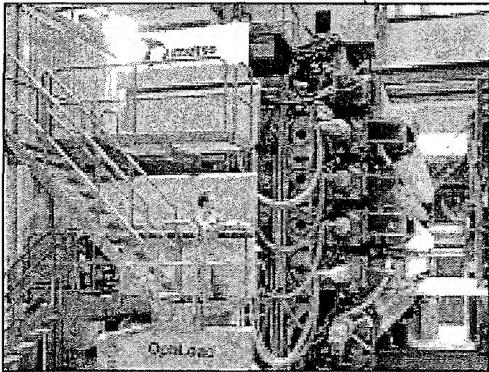


Winners' Choice

Metso Paper provides profiling rolls for calenders and presses. To date, the company has supplied more than 1,000 deflection-compensated rolls to paper and board mills all over the world. Metso Paper is the market leader in calender technology.

REFERRENCES

P O W E R T O S E R V E



Committed to the future of fiber and paper

As the global paper technology leader, Metso Paper has developed the world's fastest paper machines. This forerunning expertise is incorporated in all our products, including our Sym roll portfolio.

With specialized service centers and service points, Metso Paper is able to offer local support to the fiber and paper industry around the world.

Our innovative products and support solutions combine modern technology and unrivaled expertise for your benefit. With Metso, you always have easy access to the latest fiber processing and papermaking know-how.

Calenders for all paper and board grades,
for new machines and modernizations

Metso Paper is the market and technology leader in the field of calendering. Our continuous flow of new, innovative and tested solutions guarantee our customers' leadership in the highly competitive paper and boardmaking industry.

Metso Paper's range of calenders includes off- and on-line OptiLoad™ multinip calenders, OptiSoft™ soft calenders, OptiDwell™ shoe-nip calenders and OptiHard™ hard-nip calenders. Separate brochures on each calender type are available upon request.

www.metsopaper.com
e-mail: paper.service@metso.com

